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SCIENCE NEWS LETTER

DETROIT

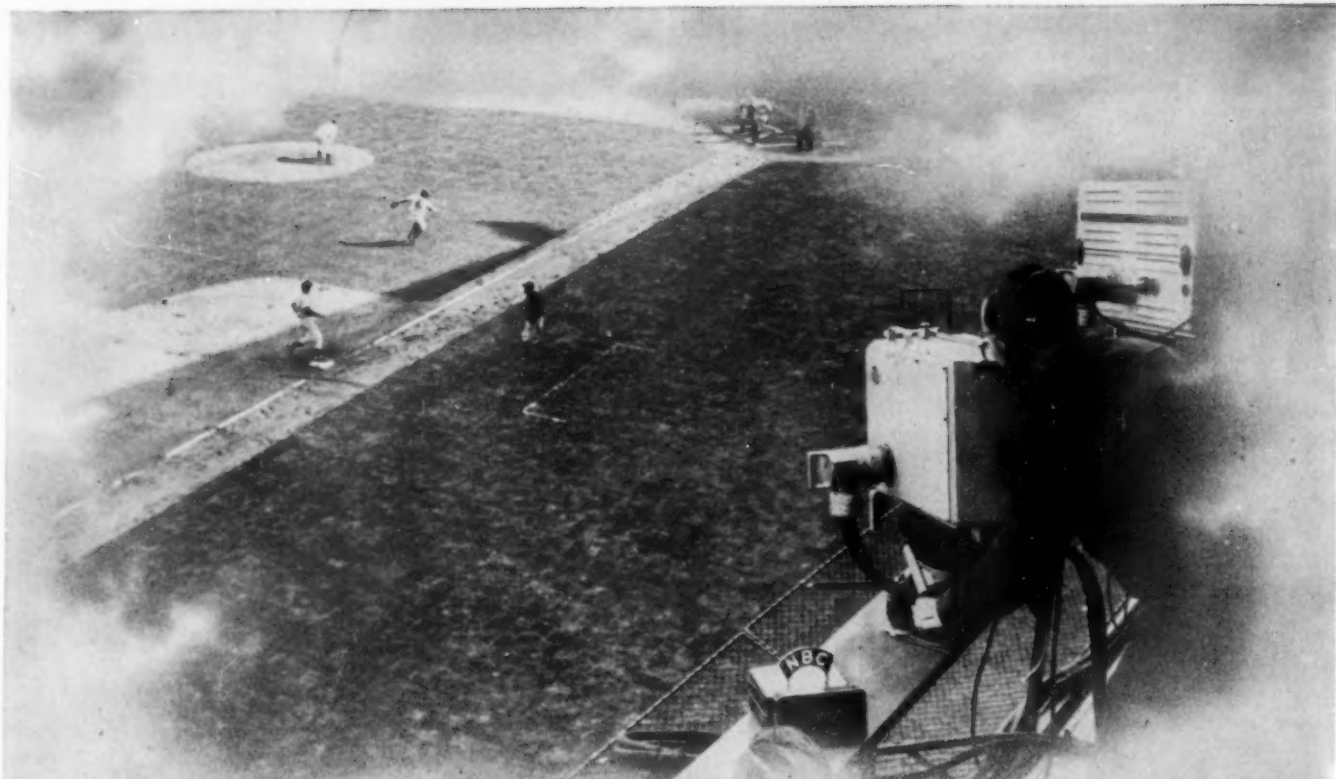
THE WEEKLY SUMMARY OF CURRENT SCIENCE • APRIL 22, 1964



Monkey Faces

See Page 269

A SCIENCE SERVICE PUBLICATION



NEW VISIONS for Tomorrow's World

● IT DOESN'T MATTER NOW whether clouds hide the sun, or whether evening shadows fall on the baseball diamond. If the fans in the grandstand see the game so can the modern television camera.

That was not always so; the pre-war television "eye" needed as much sunshine as it could get to illuminate the scene. The same was true of football—final quarters were occasionally "washed out" on the television screen.

But thanks to research, conducted at the RCA Laboratories, a new super-sensitive television camera, rivaling the human eye in its ability to see under

conditions of poor light is in prospect for the post-war world. Then, by television you will see every last-minute play of the ball game as clearly as if you were in the stands. Entertainment, sports, news events will pass before your eyes with every detail, every shadow faithfully reproduced.

Today, RCA's research facilities are devoted to providing the fighting forces of the United Nations with the best radio and electronic equipment available. Tomorrow, these same skills will continue to serve America in developing and creating new and finer peacetime products.



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RESEARCH

Unselective Service

Under-26 draft threat endangers America's research. Telegraphic survey shows that loss of technically skilled young men would seriously hamper the war effort.

► THE PRESSURE for drafting all young men under 26 is causing America's research laboratories in government and industry, working almost 100% on producing new weapons and materials for war, to face one of their most serious crises.

If the unselective induction of the cream of America's scientists and engineers continues, there will be lost in large part the magnificent research effort on which the Army and Navy are relying so heavily for new devices of war to "maintain superiority over an enemy who is desperately and skillfully depending on scientific skills."

At most about 4,000 young men under 26 years of age will be turned into combat troops if raiding of research laboratories is allowed to continue.

Many of these young men in their present jobs are worth their weight in generals. In the Army they would be mere untrained inductees, months away from any real service.

To assay the mounting danger, Science Service has polled telegraphically about a dozen of the leading research laboratories in the nation.

The research laboratories of Massachusetts Institute of Technology at Cambridge, Mass., possibly the largest war research center, have 478 of their technical staff engaged in war research who are under 26. According to President Karl T. Compton, who is also a member of the National Defense Research Committee, all of these men are irreplaceable. This number does not include 4F's or those released for physical disability.

"Selective service is rapidly becoming no longer selective," Dr. Compton declared. "Until recently the draft boards have been able to make intelligent decisions on deferment of essential personnel."

"The serious danger in the present pressure for mass induction," Dr. Compton continued, "is the irreparable loss of specialized knowledge for developing, producing and operating those scientific devices needed to maintain superiority over an enemy who is desperately and skillfully depending on scientific skills to match our unquestioned superiority

in mass production of standardized weapons.

"In modern warfare, battles are won in advance in the scientific laboratories, for which much credit is due the patriotic young scientists. As the war approaches the decisive point many young scientists have already been transferred from the research laboratories at home to the active theaters of war where they serve in field laboratories or in consulting groups to assist in securing most effective war use of the new weapons.

"It is already impossible to meet the demand for such experts in the field and any mass induction of the young scientists still in the laboratories would render impossible further supply of this very urgent and highly individualized special service."

At General Electric Research Laboratories, Schenectady, N. Y., there are 29 out of 145 total technical staff who are below 26, all of whom are irreplaceable, Dr. W. D. Coolidge, director, reported. The percentage of young men is highest in new developments like radar.

At Westinghouse Research Laboratories, East Pittsburgh, Pa., 32% of the technical staff is affected by the below 26 draft, and Dr. L. W. Chubb, director, declared that while the situation is too confused to predict final outcome, induction of research workers will delay important war research.

In Socony-Vacuum Oil Co. research laboratories there are 66 technically trained college graduates under 26 and this number, Dr. J. B. Rather, director, stated, is much lower than formerly because of losses to the armed forces. Deferment of 41 has been requested of the War Petroleum Administration, most of whom are engaged in the 100 octane aviation gasoline program.

"Dilution of technical staff by losses and subsequent replacement with inexperienced women and non-technical people has already resulted in reduction in volume and quality of essential war work and we expect the situation to get worse as the year progresses," Dr. Rather said.

At the National Bureau of Standards, Washington, there are about 80 out of a total personnel of 2,300 who are scientists 22 to 25 and most of these are in the new projects, many of them secret, that the Army and the Navy are pushing the hardest for results. Dr. E. C. Crittenden, assistant director, explained that mass induction would practically wipe out some research projects of a most important nature in radio and other elec-



CARPET OF DEATH—Steaming lava of Mt. Vesuvius is shown creeping towards the picturesque little town of San Sebastiano. The inhabitants of the Italian village were evacuated by Allied forces, and only deserted buildings remain in the path of destruction of the smoldering volcano. (See SNL April 1 and 15) Official U. S. Navy photograph.

trical devices, for instance. Induction of the scientists and their assignment back to their old work is not possible under Army regulations because it is an Army rule not to station such men in uniform in Washington.

In du Pont's 30 research laboratories scattered throughout the country about 20% of the technically trained men are under 26 and all are "virtually irreplaceable at the present moment."

Detailed information was not obtainable as to what the Navy will do to keep about 500 or more scientists under 26 at work on some of the most important war research in the nation. These young men are civilians in the Naval Research Laboratory, the Naval Ordnance Laboratory, and other Navy research establish-

ments. If the draft board pressure gets too great, as it threatens, these scientists will probably be given Navy commissions. The only difference will be that the tailors of Washington will be richer by about \$125,000 because of the \$250 per commission uniform allowance. The men will continue doing their present essential jobs.

Among the dozen typical research laboratories queried, only one had no real under-26 draft problem. That was the Mayo Clinic, Rochester, Minn., where only one non-physician will be affected, although most of the research there by 35 physicians is on aviation medicine or otherwise related to war medicine.

Science News Letter, April 22, 1944

MEDICINE

6-Hour Gonorrhea Cure

Sulfa-resistant disease in women can be eradicated by a brief treatment with penicillin. Previously reported successful cures have been in men.

► **SULFA-DRUG-RESISTANT** gonorrhea in women can be cured by penicillin treatment in six hours, Dr. Alfred Cohn, Dr. William E. Studdiford and Dr. Isaak Grunstein, of New York, report. (*Journal, American Medical Association*, April 15).

Previously reported successful penicillin treatments of sulfa-drug-resistant gonorrhea have been in cases in men. The New York doctors treated 44 women, 42 of whom had not been cured by at least two courses of sulfathiazole treatment. The other two were hypersensitive to sulfa drugs and were therefore given the penicillin.

"All 44 patients were apparently cured by penicillin treatment," the doctors report.

In one case a relapse occurred on the second day after treatment was stopped. This patient had received only 50,000 Oxford units of penicillin. After further treatment with 100,000 units, bacteriological tests showed she was cured.

A total dosage of 75,000 units given in three doses within six hours appears to be a satisfactory scheme of treatment. The penicillin is given by hypodermic injection into the muscles and the patients do not have to be in bed.

If further studies confirm these preliminary ones, "it will be possible," the doctors state, "to control sulfonamide-resistant gonorrhea by one-day treatment of ambulatory patients."

Science News Letter, April 22, 1944

PSYCHOLOGY

Summer Children Brighter

► **THE POPULAR** idea that the season in which a child is conceived influences his mentality has been exploded by Dr. J. A. Fraser Roberts, director of the Burden Mental Research Department, Stoke Park Colony, Bristol.

Although it is an established fact that summer children, whose birth months are May to October, are brighter than winter children, whose birth months are November to April, it is the intelligence

of the parents and not the season which accounts for this difference, Dr. Roberts reports. (*British Medical Journal*, March 4)

Unfortunately for those who thought that planning the season of birth would produce more intelligent offspring, and for those searching for conditions which made certain seasons favorable and hoping to create those conditions in other seasons, Dr. Roberts' studies demonstrat-

ed the fallacy of these eugenic beliefs.

Intelligence tests were given to 244 pairs of Bath, England, children born to the same parents, one in each case being born in the winter and one in the summer.

Although the summer children had a slight edge over the winter group, the difference between summer and winter children of the same family were negligible.

Scores made on tests taken by the cleverest, median and dullest chosen from the summer children were practically the same among the same group in the winter children.

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Greater than the difference in intelligence between the summer and winter children is the difference in the number of brothers and sisters, the summer children having fewer.

There is a tendency for the children of more intelligent parents to be born slightly more often in summer, those of less intelligent parents slightly more often in winter, Dr. Roberts says.

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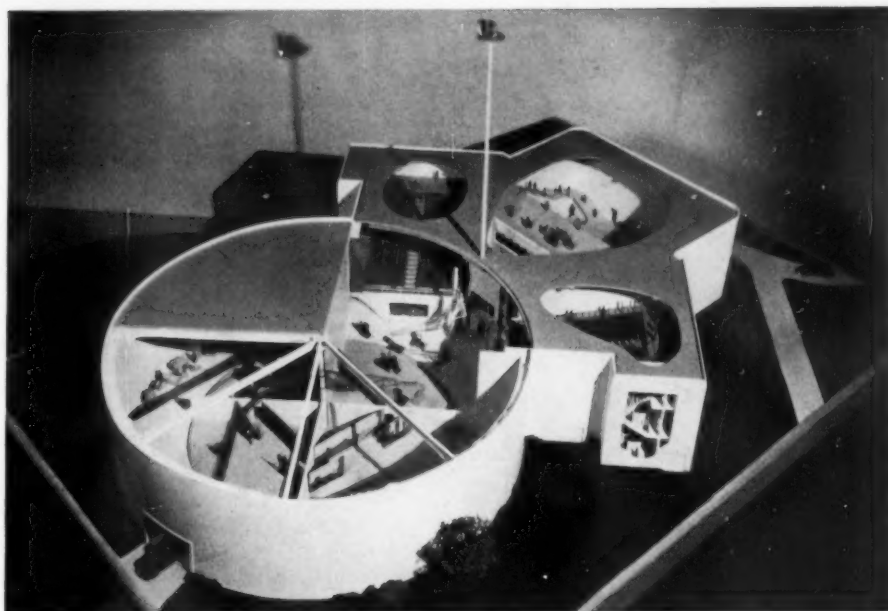
RADIO

Television Studio To Have Revolving Stage

► A TELEVISION studio plan for the post-war period, with a revolving stage carrying four sets, which two audiences can watch by turns or simultaneously while the cameras shoot, was demonstrated in New York as a large working model before an audience of technical men and newspaper writers. The "unveiling" was done by Dr. Walter R. G. Baker, vice president of General Electric Company.

Heart of the set-up is a circular revolving stage under a central dome-shaped roof. This is divided into quadrants, each bearing a complete stage, so that while one of the four is facing the cameras and the studio audience the other three can be undergoing dressing for scenes to follow, which can then be swung into place when ready.

The auditorium part of the theater is divided into three sectors. The center part is occupied by the cameras, which are set to take the scene on the stage from any range and all angles. Flanking this are the sectors occupied by the



FOR THE FUTURE—A revolving stage will make it possible for two audiences to watch by turns or simultaneously the television broadcasts of the post-war world in a studio built after this model. A single set of controls, cameras and broadcasting equipment will be adequate to handle continuous network schedules without interruption for changes of scene or studio audience.

radio audience. Soundproof curtains are so arranged that at the end of any scene either sector can be cut off from the stage, and the people may file out without disturbing the action; or both audience sectors may be used simultaneously if desired.

Design for the new studio was worked out by architects of the firm of the Austin Company of Cleveland.

Science News Letter, April 22, 1944

PSYCHOLOGY

Good Looks Important

► BEING good-looking is important if you want to get married at an early age. A neurotic personality is no handicap to early marriage. These findings, applying to both sexes, are reported by Dr. Ernest W. Burgess and Dr. Paul Wallin, of the University of Chicago and Stanford University. (*Human Biology*)

Scientists investigating the problem of what leads men and women to marry at various ages have till now limited their studies largely to such factors as race, nationality, nativity, class, occupation and education. These studies establish the fact of differences in average

age at marriage for broad social and economic groups but are inadequate to account for the differences within any given group.

The Chicago and Stanford scientists believed it reasonable to assume that the explanation for such differences might be found in a study of psychological factors such as physical attractiveness and personality. So they had 1,000 engaged couples fill out eight-page schedules which included a rating of physical appearance and the 42 most discriminating questions on a neurotic inventory.

The findings are based on the 483 couples who are now married and whose age at marriage is therefore known. At the time of the study, they lived in the Chicago metropolitan area, were mostly college graduates, between 20 and 30 years old, and were predominantly of native-born, Protestant, middle or upper middle class parentage.

"In the case of both the men and the women," the scientists report, "the average age at marriage increases as the attractiveness ratings decline."

This was not true of the men when their attractiveness was judged by themselves, but was true on the basis of attractiveness ratings by fiancées and friends.

For women the differences in age at marriage in relation to ratings of physical attractiveness is greatest by ratings of fiancées, intermediate by self-ratings, and least by friends' ratings.

No relationship was shown for men or women between age at marriage and neuroticism. Having ups and downs in mood, being easily hurt, subject to depression, self-conscious in public, shy in intimate relations, lacking in self-confidence and given to daydreaming did not, as was expected, lead to marriage at a later age.

Science News Letter, April 22, 1944

PSYCHIATRY

Soldiers Wounded in Mind

Nearly half of the G. I.'s being returned to civilian life by discharge from the Army are mentally or emotionally unfit for fighting.

By MARJORIE VAN DE WATER

How to understand and help the returning soldier discharged for neuropsychiatric reasons—pressing American problem at the present time—is discussed in this article which was prepared after consultation with leading neuropsychiatrists and experienced Army men. The article was written at the request of an editor of one of the many newspapers served by Science Service. Through the public spirited interest of many other editors it was run as a series of articles in newspapers reaching from 2,000,000 to 3,000,000 readers.

► FOUR OR FIVE men out of every ten discharged from the Army for disability are mentally or emotionally unfit.

This means that mental and nervous illness is responsible for a far greater loss of manpower to the armed forces than are battle wounds, influenza, malaria or any other single illness.

It is a serious problem for the Army. And a serious problem for the home front, too. For the people at home are wondering just what it means when a man is discharged for neuropsychiatric reasons. Are such men mentally ill, insane? Are they going to act "queer"? Can they make good on civilian jobs?

Each month something like 25,000 of these men will be coming back to American homes and looking for civilian jobs if the present discharge rate continues.

Most of the worry of families, friends and employers is due to lack of information about the sort of person that the Army is sending home for this reason.

Few Need Hospitalization

The great majority of the neuropsychiatric discharges are of men who belong in the first, the "neuro," part of the classification. They are neurotic. Few are actually suffering from mental diseases. Few need hospitalization after discharge, although many might profit from good psychiatric advice.

Up to the present time, at least, the

great majority are men who have not seen service overseas. They have had their crack-up after a few months, perhaps only a few weeks of training. They do not fit into military life and cannot successfully adjust to it.

It is a debatable question as to whether they can blame their troubles on their Army experience. Certainly it is true that these men might have adjusted perfectly well in civilian jobs if the war had not uprooted them. Most of them will go back to civilian jobs and fill them quite adequately. A few undoubtedly are the sort who never would be very successful in either civilian or military occupations.

Plenty in Civilian Life

But the Army has no corner on neurotics; there are plenty in civilian life. They become more conspicuous in the Army for two reasons. In the first place, men are so closely associated in the Army that they have no "private lives." The oddities of any one individual become matters of public knowledge and public concern. And then, too, many individual oddities and quirks of behavior cannot be tolerated in a military situation—they just do not fit in.

Think how many persons in civilian life suffer from "nervous indigestion"—cannot eat this or that. They have their own private stock of favorite "tummy-treats" or "banishburn" in the bathroom medicine closet and even their best friends do not know how much they consume. But the Army cannot issue soda mints with the K rations. Nor can time out be taken during combat for the men to stir up something for that after-meal discomfort.

Army Can't Afford Aches

Neither can the Army afford to have soldiers subject to headaches, stomach ulcers, high blood pressure, heart palpitation, dizziness or faintness. These are ills to which the neurotic is liable. They are all aggravated by emotion, by worry, by over-conscientious "stewing" over present and future problems.

Some men cannot stand the sight of blood. They faint, passing out cold. But, unless that person wants to be a dentist or a butcher or a surgeon, this is not likely to interfere with his job very much in civilian life. It will in the Army.



TENSE MOMENT—Combat is full of moments like this—moments of waiting for the word to advance against the enemy. Minds emotionally unfit to withstand the tension often crack up. Signal Corps photograph.

Very few of the nervous troubles of men discharged from the Army during military training are due to fear of combat. Many more can be traced to worries and troubles at home. Financial worries, homesickness, hunger for affection and companionship, concern over sickness at home—these are some of the things that make a soldier crack up in camp or “go over the hill.”

No one who leaves a comfortable, happy home enjoys the tough grind of military life. Strict discipline, hard work, lack of sympathy and being plunged into a large group of strangers are all hard to take for the individual who is naturally shy and unable to make new friends easily. Everything is new to him. He is awkward. The sergeant yells at him. It seems to him that nothing he does is right. He is bawled out right and

left by the noncoms and he is teased by the other men.

After a little while he may begin to feel completely discouraged and defeated. He is sure that he can never make good in this strange new life. It is too hard. Most men get through this stage all right. Gradually they catch on to all the things expected of them. They learn the ropes and begin to feel at home. They make friends. But a few remain dispirited. It really is too hard for them. They are not fitted to be soldiers.

It is not their fault. Usually this type of man tries his utmost. But his very best is not quite good enough for the very stern demands made on him. So the Army decides he would be much more good to the war effort in a civilian job in a war plant where men are badly needed too.

N.P. Soldier Not Yellow

► THE MAN who cracks up mentally or nervously in combat is not yellow. He is no more a weakling than is the man who receives a bullet wound or who develops malaria.

Every man has his limit, mentally as well as physically. Modern combat puts a maximum of strain on the fighter so that if a man is in the fighting long enough, the strongest one may reach the limit of his endurance.

Fortunately, the cure for such cases is relatively simple. The principal needs are for rest, sleep and to be away from the strains of combat.

Formerly Called “Shell Shock”

These are the cases that were called “shell shock” during the last war. That term is no longer in use, because it was so loosely used and misused that it lost all real meaning. “Shell shock” was originally intended to describe the condition resulting from the nearby explosion of a shell. The force of the explosion will sometimes injure the body tissues and may cause brain concussion. This true shell shock is now called “blast concussion.”

The nervous condition of men who have had more of war than their nervous systems can tolerate has gained new names in this war. The men now speak of combat fatigue, flying fatigue, gang-plank jitters, destroyer stomach, war nerves and other such descriptive names. Medical officers prefer not to use any of these names. To do so would imply that it is a new disease not known in

peace; actually it is not. It is the natural consequence of too much strain. Such strains may occur more frequently in war, but are not peculiar to it.

So the medical officers lump all such conditions under the broad term neuropsychiatric disability, abbreviated as N.P., which means simply that the disability is a mental or nervous condition. As a label, it tells no more about the nature of the disability than would the term physical disability if that were applied to all wounds and physical illnesses.

You need not expect the man discharged for N.P. disability to act wild. Too often, in fact, it is not noticeable that anything is wrong with him, so that he may be needlessly distressed by stupid strangers that ask “Why aren’t you in uniform?”

First Sign

The first sign you have that he has been under terrible strain may be when he starts to light a cigarette. You may notice then how his fingers tremble. It is difficult, too, for him to control his emotions at times. If painful subjects are brought up, he may abruptly leave the room or even possibly burst into tears. It is well to be careful about questioning him about how he won his decorations. Too often they recall to him the horrors of friends killed and mangled—the awful sights and odors of the battlefield.

A chief difficulty that may persist for months or longer is the torture of “battle dreams” in which the soldier re-lives the



WAITING—Those wounded men will be evacuated to rear areas. Some of the wounded from every combat are hurt in body, others in mind.
Official U. S. Navy photograph.

terrible experiences of combat over and over again. Sleepless nights, and dream-filled slumber may deprive him of rest so that when morning arrives he is worn out to start the day.

He may drink a considerable amount in the hope that alcohol will put him to sleep or make him forget the things it is so painful to remember. Or he may take drug sedatives for the same reason.

Another conspicuous symptom is an over-sensitiveness to noise. The dropping of a pan, the banging of a door or even a sudden noisy movement, may make the soldier jump out of his chair and set him trembling.

When he first comes home, he feels like an utter stranger. He realizes that no one around him has any conception of the meaning of what he has gone through. He feels that it is useless to speak of what has happened to him because none of these people could possibly understand. He may resent the fact that the folks at home are not suffering as he has suffered, that they are gay and apparently light-hearted. He feels cut off from friends and family.

He needs sympathy and understanding, but no over-sentimental pity. Above all, he needs the feeling that he can still contribute in an important way toward winning the war. This he is well fitted to do, for no one can know as he knows the importance and urgency of war plant work.
(Turn to page 266)

NUTRITION

Factor Found in Cream Prevents New Disease

► A NEW deficiency disease, marked by muscular stiffness and deposits of calcium phosphate in all organs and parts of the body, was described before the Cleveland meeting of the American Chemical Society by Prof. William J. Van Wagendonk of Oregon State College.

The preventive dietary factor is present in cream, in very small quantities. Prof. Van Wagendonk stated that he has isolated one milligram of it, and that he used up 550 gallons of cream for the purpose. It would take about 30,000 milligrams to make one ounce by weight. Pasteurization destroys it. The same factor has also been detected in green vegetables, especially cabbage.

Guinea pigs kept on a diet containing skim milk but no cream developed the stiffness in two or three weeks, and the lime deposits in about a year. One-tenth microgram of the preventive factor (which is a ketone) abated the stiffness in about five days, but it took a year for the lime deposits to be eliminated.

Discovery of the lime deposit formation is credited to Prof. Van Wagendonk's colleague, Prof. Rosalind Wulzen.

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MEDICINE

Penicillin Saves Eyes That Would Have Been Lost

► THE EYE-SAVING role of penicillin appears in a report by Dr. G. T. Willoughby Cashell, Squadron Leader and Ophthalmic Specialist, R.A.F. (*British Medical Journal*, March 25)

"It is possible to save eyes which would otherwise undoubtedly have been lost from intraocular infection," he declares.

Inflamed, crusting, scaly lids with watery discharge, present in some cases since childhood, cleared up within two weeks or less when a drop of penicillin solution was put in each eye three times a day.

Cases of acute conjunctivitis improved dramatically. One man had a very severe infection of both eyes, with superficial infection of the corneas, extreme sensitivity to light, and spasm of the muscles of the eyelids. The weeping eyes caused a spreading infection of the skin of the lids which eventually affected the whole

face and spread down the neck. After 48 hours of treatment, this man could open his eyes without discomfort, the redness of the membrane lining the eyelids and covering the eyeball had almost disappeared and the skin of the lids was clearing rapidly. Within a week the whole condition subsided.

Ulcers of the cornea and infections following perforating injury of the eyes responded equally well to penicillin treatment. In five out of six cases of such injury, spread of the infection to all structures and tissues of the eyes was avoided. In two cases, Dr. Cashell states, the eyes would undoubtedly have been lost from such widespread infection if penicillin had not been used.

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GENERAL SCIENCE

Science Teachers Unified Into Single Association

► A SINGLE national organization of science teachers named the National Science Teachers Association, has been formed to take over the functions of the two existing science teacher bodies, the American Council of Science Teachers and the American Science Teachers Association.

Action toward the merger was taken at a conference of delegates representing leading science teacher organizations held in Pittsburgh. The new organization will have most of the regional and specialized societies in its field allied with it, and it in turn will be affiliated with both the National Education Association and the American Association for the Advancement of Science.

Dr. Philip G. Johnson of Cornell is the temporary chairman of the new organization, while Norman B. D. Jones of St. Louis heads the ACST and Dr. Morris Meister of the Bronx High School of Science, New York City, is president of the ASTA.

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CHEMISTRY

Candle to Replace Stove In Heating Combat Rations

► A SQUARE CANDLE for heating the meat components of combat rations in the field when gasoline stoves are not accessible has been developed by the Quartermaster Corps. Composed of refined paraffin wax with a high melting point and wood flour, it will ignite readily even after being submerged in water for several hours.

Science News Letter, April 22, 1944

IN SCIENCE

PHYSIOLOGY

Poison Fought Poison In Experiments on Rats

► POISON fought poison, in a series of experiments on white rats reported by Prof. C. R. Moxon, Dr. C. R. Paynter and Dr. A. W. Halverson of the South Dakota Agricultural Experiment Station, at the Cleveland meeting of the American Chemical Society. The rats were given small measured doses of selenium, a soil poison that has been causing considerable trouble in some stock-raising areas in the Northwest. To counteract this, some of the animals were given balancing doses of arsenic. This poison has an antagonistic effect to selenium, and saved the lives of some of the selenium-poisoned rats.

Science News Letter, April 22, 1944

TECHNOLOGY

New Enamel Can Withstand "Hades Temperature"

► A NEW porcelain enamel that can withstand "temperatures usually associated only with Hades," is now used as a finish for airplane exhaust stacks, Robert A. Weaver, president of the Ferro Enamel Corporation of Cleveland, told the American Ceramic Society meeting in Pittsburgh. This is only one of the many wartime adaptations of this substance.

Thanks to the development of thinner cover coats and better bonding qualities, the porcelain enamel of today is tougher, more resilient, more shockproof, and free from chipping, Mr. Weaver declared.

"It is as different from old enamel as the modern refrigerator is from the old-fashioned ice box," he said.

Not only has regular enamel of store front and stove, consisting of a ground coat and one or more cover coats, been substantially improved, but real progress has been made on a single coat finish that should indicate a greatly expanded post-war use of porcelain enamel, Mr. Weaver said.

"Better processing methods, plus the permanence and color of porcelain enamel, should make this ideal for corrugated metal roofing, metal shingles, steel shelving and a host of other products," he predicted.

Science News Letter, April 22, 1944

NE FIELDS

AERONAUTICS

Airplane Landing Run Shortened by Parachutes

► A NOVEL DEVICE for shortening the landing run of an airplane consists of two equally spaced air drags which open at right angles to the long axis of the plane and are released by the pilot at will. In flight they are held in recesses on the sides of the plane near the rear. When released they swing out simultaneously, acting in unison so that the plane motion will not become unbalanced.

On the ends of these two air drags are lobe-shaped parachutes which are opened by the onrush of the air. They furnish sufficient resistance to bring the plane to a relatively quick stop. The patent for this device, No. 2,346,255, was granted to Arthur David Hansson, Shrewsbury, N. J.

Science News Letter, April 22, 1944

NUTRITION

Rice Pudding Popular With Soldiers Overseas

► POPULAR DIET items with American soldiers overseas are the pineapple rice pudding of their ten-in-one ration, salads and mashed potatoes with gravy, Col. Paul E. Howe, Sanitary Corps, Director of the Nutrition Division, Office of the Surgeon General, told a press conference in Washington on his return from a six months' tour of inspection of troop installations overseas.

The men as a rule are well nourished, Colonel Howe stated.

Little things, such as catsup, baking powder and spices, are important for giving variety to Army messes, he found, but on the whole the men like good plain cooking rather than fancy things. They also like American food although they are glad to get such native foods as fresh meat, fresh butter and fresh vegetables when these are available.

The most exotic of the native foods which he mentioned were gazelle and wild boar meat, which some troops were able to get in Persia.

In spite of tremendous advances in knowledge of nutrition, men in the Army camps in this country were as well nourished in 1918 as today, Colonel

Howe said. The Army and civilians, too, ate carrots and fresh fruits and the like then as now, though we did not know then about the vitamins and minerals furnished by such foods.

Colonel Howe said he could not compare the nourishing quality of the rations for overseas troops today with those in World War I because he had personal knowledge of Army rations only in this country during the earlier war.

Science News Letter, April 22, 1944

CHEMISTRY

Wood Veneer on Metal Possible with Pliobond

► WOOD VENEER on metal surfaces is now possible with a new adhesive developed by scientists of the Goodyear Research Laboratory. With the new bonding material, called Pliobond, a sheet of wood as thin as one forty-eighth of an inch can be firmly cemented to a metal sheet, and the combination can be bent into any chosen form or cut with shears or stamping press without injury.

Steel, aluminum and other sheet metal, to which a thin layer of wood is attached with this bonding material, have many possible uses, including panelling walls in office buildings and homes, cabins in aircraft, and cars in light-weight streamlined trains. In veneering the metal, the Pliobond is spread on it, the layer of wood put in place, and moderate pressure and heat applied for 15 minutes.

Science News Letter, April 22, 1944

PUBLIC HEALTH

Appendicitis Death Rate Has Been Almost Halved

► THE APPENDICITIS death rate has been almost halved in the last four years, statisticians of the Metropolitan Life Insurance Company announce.

The statement applies to the company's industrial policyholders but Census Bureau records quoted in the company's statement show that all but five states have lowered their appendicitis mortality by more than 50% in the years between 1930 and 1942.

The reduction in appendicitis mortality, called an "outstanding public health achievement," is credited primarily to the intensive educational campaign to encourage early hospitalization in appendicitis and to urge against the use of laxatives in the presence of abdominal pain.

Science News Letter, April 22, 1944

ENGINEERING

Landing Fields May Have Underground Lighting

► ILLUMINATION of aviation landing fields by underground lights, eliminating the commonly used overhead system of flood lights with the necessary superstructures, is a possibility under U. S. patent 2,346,304, just issued to Eulalia C. Henderson and George Stallard of San Francisco. It covers a cushioned, non-skid, illuminated surface, and does away with glaring lights and dangerous obstacles.

The landing surface of the flying field, constructed in accordance with the patent, comprises a large number of solid transparent panels, set in sections, and means of illuminating the panels from underneath. Sections are mounted on cushion springs and are depressed vertically when weighted by a plane. The undepressed edges of adjacent sections form ridges that help brake the plane and prevent skidding. Additional protection from skidding may be obtained by grooves or cups on the upper surfaces of the panels. Ice and snow are melted by the heat of the lights, or by supplementary heat if necessary.

Science News Letter, April 22, 1944

CHEMISTRY

Synthetic Vitamin C Produced from Beet Pulp

► SINCE vitamin C, or ascorbic acid, has been found useful in hastening the healing of wounds, greatly increased quantities of it are in demand. A means for producing it synthetically from beet pulp, ground out in enormous quantities at American sugar mills, was described before the American Chemical Society meeting in Cleveland by Dr. Horace S. Isbell of the U. S. Department of Commerce.

Beet pulp contains a compound known as galacturonic acid. A liquid extract of the pulp treated with salts of sodium, calcium or strontium and then evaporated, produced large quantities of the acid in a high degree of purity. By three further chemical steps it was converted into the vitamin.

Under present conditions, a ton of beet pulp will yield about 50 pounds of vitamin C, Dr. Isbell stated, but he added that improvements in the process can be expected to increase the yield considerably.

Science News Letter, April 22, 1944

From Page 263

Home Is Responsible

► THE HOME and not the battlefield is the cause of breakdown for most of the men discharged from the Army as neurotic.

Combat can and does cause men to crack up. But the great majority of the men so far discharged have had their difficulties right here in this country in training camp.

The trouble with most of these men is that although their birth certificates may indicate they are of "military age," their behavior shows that they are really boys not yet grown up emotionally.

Many are tied to the apron strings of mother, sister, wife or perhaps father. They are affectionate boys who are dependent upon some loved one and literally cannot get along without her.

Nearly all normal men need the love and care of someone. Most men who go into the Army are homesick now and then and long with a wistful pain for Main Street and the old back porch, or a certain flight of stone steps in the city. Nearly all are delighted with a letter

from home or a snapshot. But for a few the pain of separation from home and family is so intense that it is impossible for them to put heart into their military duties. They sit and brood. They are actually ill. Finally, they have to be sent home.

Needed at Home

It may not be the man himself who is the dependent one. It may be the mother or the wife who is utterly helpless when the draft takes the man of the house away. He is the only one who knows how to run the furnace or balance the bank account or take the mouse out of the mousetrap. She is completely unable to figure out how the gasoline ration system works or what to do when a fuse blows out. If a family crisis comes up—if there is serious illness or the roof leaks, the only solution seems to be to send post haste for the man who is now in uniform. If he is not able to drop Uncle Sam's affairs immediately and go to the

rescue of those at home, he feels guilty and worried and the home folks feel deserted and sunk.

The soldier who must be discharged from the Army for emotional breakdown is often a man who cannot break home ties because someone at home is constantly making such demands upon him for sympathy, for decisions or for help.

And sometimes the boy in uniform is not only held back by the strangle hold of a clinging vine at home, but he also is helplessly dependent on the same person who must lean on him. It seems a little like the blind leading the blind, but it often happens that the mother-son or husband-wife ties are so very intimate and tight that neither can get along without the companionship and help of the other.

But not all the men discharged from the Army for mental or emotional unfitness have such indulgent mothers or wives and happy, comfortable homes. Contrasted with this type of home is the typical home of a large group of men who develop mental disease in the Army.

These men never get mail from home, nor do they want it. They have no home worthy of the name—no place or person to look back on with loving memory or to look forward to with longing. They see themselves as unwanted children, resented by unwilling parents or hated by jealous brothers and sisters. The hardships and dangers of military life are much more difficult for such a man to bear because he has no feeling that his folks at home are backing him up. He is not spurred on by their pride in him, nor comforted by their affection.

Homecoming No Joy

Anticipation of return to such a hateful spot may be harder for a soldier to face than are the hand grenades and rifle fire of the enemy. When the going gets extremely tough, he has less need to cling to life than has the man with affection waiting for him after victory.

In one group of service men who had to be hospitalized for mental illness it was found that more than four out of every ten came from broken homes. Either the parents had been separated or divorced during the childhood of the patient or had quarrelled violently or else one or both the parents had died.

And so it is the home—with demanding and dependent love, or with rejecting and embittering hate—that may put too much burden on the soldier and cause his breakdown.



DEATH BEACH—Scenes like this one on the Tarawa beach show the kind of strain men face in combat. Those who break here are not yellow. Official U. S. Navy photograph.

N.P.'s Excellent Workers

► **MEN DISCHARGED** from the Army for neuropsychiatric disability are employable. Most of them will make excellent workers in essential war jobs. But they need some consideration on the part of employers and care in placement.

As a rule these men feel very badly at being out of the Army. They don't want to go back into combat—they have had a little more of that than their nervous systems could tolerate. But neither do they want to be left out of things. They are eager to do whatever they can to hasten victory.

But some will not want to take a job right away. They want a little time to get reacquainted with their families, to hunt up old friends, to take a look at the old familiar places. If they feel this way, they shouldn't be rushed into a job. Let them take it easy for a while.

Often Over-Conscientious

It is well, in fact, for the employer to remember that the type of person who cracks up in military life is nearly always an over-conscientious sort of person. The "gold-bricker" manages to escape strain; it is the man who won't shirk and who faces the music that is the one to break. So when such a man wants a day or an hour off, you can be sure that he really needs it.

Here is some advice for employers, gathered from psychiatrists who have been caring for these men:

Don't heap lots of responsibility on them. Work it in gradually as they grow more used to civilian life and feel stronger. Remember that it may take a year or two before the discharged soldier has completely recovered from what he has gone through.

If Sensitive to Noise

If the man has come away from the Army over-sensitive to noise, be careful not to employ him where he will be exposed to sudden, crashing noise. The hum of machinery may not bother him so much, but clanging steel, the noise of riveting, sudden loud bells or whistles may be unbearable.

Don't give him a job as night watchman, in the mistaken but well-meaning notion that it will be light work for him. Loneliness and time for thought are just the things that these men do not need. Give him a job where he will be active and pleasantly occupied every minute.

Most of these men do poorly on seden-

tary work. After a very active life in the Army, don't expect them to sit still at a desk all day long. If you give a man a desk job, plan frequent breaks for him that will give him a little leg-stretching exercise. Hard work out-of-doors, such as farm work, is the best possible sort for most of them. It gives them little time to think during the day and makes it easier for them to sleep when night comes.

The worst possible type of work for the soldier discharged for neuropsychiatric reasons is work that entails long dull periods of slack work punctuated by peaks of exciting bustle and rush. This, after all, is what he could not stand up under in the Army. Waiting gives time for thinking and brooding. Think-

ing and brooding lead to depression and the blues. Then the brief spurt of rush work puts the man under acute strain for which he is not fit.

In deciding just how the discharged soldier would fit into a particular business or manufacturing organization, the employer should be guided more by the man's work record before he went into the Army than by any account of his illness or experience in service. If he has a record of failures, tardiness, absenteeism, illness, and temperamental differences with employers and fellow employees, then the chances are not very good that he will make a model employee now. But if his work record shows that he was a steady reliable worker before the war, you can count on him to be an asset to your company now once the training and adjustment period is past.

Family Can Help Soldier

► **THE MOTHERS**, wives, families and friends of men discharged from the Army for neuropsychiatric disability can do a great deal to help them back to full mental health.

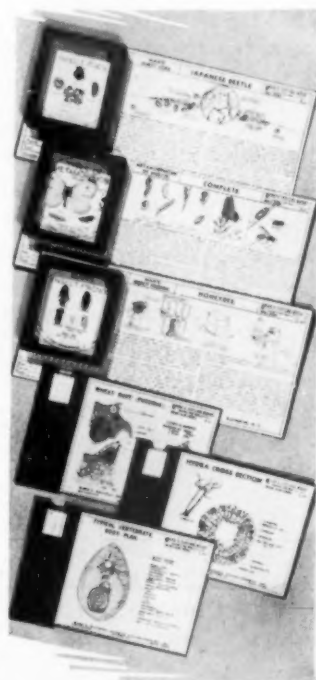
Greatest dread of these men, when they are in hospitals waiting to go back home, is that their families will not be sensible about their disability.

Emotional and fond mothers become

frightened and tearful over the "N.P. disability" diagnosis. Very little, it would seem, is known about such mental or emotional crack-ups. All sorts of superstitions and misinformation are spread about and terrify relatives.

The following facts will help to blast these false notions.

Because a man breaks in combat or in training does (Turn to next page)



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• Combining actual specimens, concise pertinent text and accurate explanatory drawings, Ward's Explano-Mounts insure correct observations on the part of students and save time by showing exactly what to look for, where to find it, and what it means. Two series now available: Type I, Insect Explano-Mount, deals with insects and the vital biological principles which are taught with insects or examples; Type II, Micro-Explano-Mount, on botanical and zoological subjects, incorporates a microscope slide.

Write for Bulletin N-397 which describes and lists 67 currently available Explano-Mounts.

WARD'S NATURAL SCIENCE
ESTABLISHMENT, INC.
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Do You Know?

Nearly 7,000,000 pounds of *tin scrap* are collected by the Army each month.

Stripped of passenger accommodations, the *Douglas DC-3A* air freighter can carry at least 5,600 pounds.

From 20% to 30% of all the *food* produced in this country is wasted somewhere between the plow and the plate.

Ice cubes freeze more rapidly if the bottoms of the trays are damp; this makes a closer contact between the tray and the evaporator.

Protein deficiency is a common cause of sows eating their young; feeding tankage and soybean meal prevents this porker infanticide.

Equipment once used for curing Italian spaghetti is now drying the freshly-laundered *clothes* of America's fighting men in southern Italy.

To reduce a woeful waste of choice stock, involved in fabricating *skis* from solid wood, skis for the Army's crack troops are being made of plywood.

Tough rope to tow airplane gliders and sheer hosiery for women are both made of *nylon*; houses are painted and teeth are cleaned with nylon brushes.

The *insecticide* DDT, or dichlorodiphenyl-trichloroethane, is so effective that one treatment on clothing gives 30-day protection from disease-carrying vermin.

Army *binoculars* are made more effective by a new surfacing treatment to the lenses which permits greater transmission of light by decreasing losses by reflection.

War or no war, more than 36,000,000 *cars, trucks and buses*, not including military vehicles, are reported still running throughout the world; only 8,000,000 less than at the close of 1939.

The new disease-resistant *Vicland oats*, distributed by the Wisconsin Agricultural Experiment Station in 1941, was grown on 1,300,000 acres in Wisconsin in 1943 and increased the state yield by 20,000,000 bushels.

From Page 267

not mean that he is yellow. He is not a coward. He did not run. He stayed at his post and suffered the consequences, until he could stand no more.

A mental break in the Army is not the fault of the individual; it is not a reflection on the character of either the man or his family. It is not due to a "taint."

A mental illness, even a severe psychosis, is not necessarily permanent. Mental illnesses developing in military service are of shorter duration and more frequently result in recovery than illnesses of civilian life.

Most of the men discharged for N.P. disability do not even require hospital care, although for many good psychiatric advice is desirable where it is available.

Many of the men trace their emotional and nervous difficulties back to the kind of home they had before they went into the Army. Perhaps the folks at home were too dependent upon the soldier, or perhaps stood in the way of his striking out for himself and making his own decisions—wouldn't let him stand on his own feet. Or perhaps the home was unhappy due to friction with an uncongenial brother or sister, father or mother. A little soul-searching on the part of the returning soldier's next of kin might result in changes in the home to make it a more favorable place for getting well.

Here are some specific suggestions to relatives, friends and fellow workers that will help the soldier to get well:

1. Don't gush. Let the soldier know in every way you can that you are glad to have him home, but try to control the tears and kisses.

2. Remember that he is a man. Mothers are inclined always to think of sons as though they were little boys, and he may have been a boy when he left home; but after service in the Army he is a

man and wants to be respected as a man. Don't try to boss him all the time or make his decisions for him.

3. On the other hand, don't meet him at the front door with a thousand family problems for him to handle. You have gotten along without him when he was away; get along a little while longer until he has had time to get his bearings.

4. Don't fuss over him and indulge him. He should not be allowed to dominate all the rest of the family or wreck the lives of those who are well. They have their rights, too, and these should be respected. It is not good for the returning soldier—it will not help to restore his health—to make him a pampered pet.

5. Don't have all the neighbors in for parties to show off the returned soldier. He has been away—a long way in spirit. He may want to relax for a while in the comfort of being home with just the family around him. Take his wants into consideration, not just what you think he should want.

6. Don't push him into a job. If he wants to rest for a while, he probably needs the rest. Some men want to try themselves out on a job that is considerably below their abilities until they regain confidence. This is wise. Don't coax him to get something better.

7. A few men come back feeling "high" and think they are able to do anything. They are likely to overestimate their strength and their abilities and will tackle anything, however much beyond them. Such men need a little steadying. And you should stand ready to mop up when the bubble bursts.

8. If the returning soldier's home has not been a happy one for him, it is best to try to face that fact and do what you can to alleviate the condition. It may be best for him to live away from home. In that case, be sure that he does not feel neglected. Let him know constantly that

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you are interested in him and want to do what is best for him. Sometimes it is possible for individuals to get along with relatives with a minimum of friction provided they are not thrown into constant daily contact with them.

9. Avoid over-solicitousness. Don't make an invalid of the returning soldier. Work is the most healing medicine for sick spirits. Let him take part in the work of the home and the community. He wants to do this. Particularly does he want a part in war work. He is out of the Army but he is still in the fight. Make good use of his services.

Science News Letter, April 22, 1944

ORNITHOLOGY

Owls Hatch From Eggs Days and Weeks Apart

See Front Cover

► BARN OWLS lay their eggs at intervals so that eggs and young of wholly different sizes may be found in the same nest. George A. Smith, of Quarryville, Pa., who took the photograph on the cover of this SCIENCE NEWS LETTER, says there were six young owls in the nest pictured. The youngest one, at the foot of the owl to the right, was less than a day old. The wide-eyed fellow at the left was several weeks old.

Barn owls are always hungry, eating their own weight in food every night, and more if they can get it. Like hawks, owls tear their prey apart and swallow the pieces whole. The flesh is digested and the bones, fur, feathers and other indigestible parts are formed into compact pellets which are regurgitated.

The usefulness of these birds in the destruction of rodents is evident from inspections of the disgorged pellets. Dr. Alexander Wetmore of the U. S. National Museum examined 1,247 pellets of barn owls that lived in a tower of the Smithsonian Institution Building in Washington, D. C. In these he found the skulls and other bones of 1,987 field mice, 656 house mice, 210 rats, 92 sparrows and blackbirds, and 4 frogs.

Science News Letter, April 22, 1944

One bad apple in a box often hastens the spoilage of all because the decaying fruit gives off ethylene gas.

Electronically cleaned air in dwellings is a future possibility; high-voltage rectifiers create electrostatic attraction which takes all dust, dirt, ashes and pollen grains out of the air.

GENERAL SCIENCE

"Living Package" of Home And Surroundings Urged

► A "LIVING PACKAGE," a complete package for living with ample land and trees and a structure that gives maximum protection from the elements at minimum maintenance, was visualized as a post-war housing goal by Irving W. Clark, manager of better homes department of Westinghouse Electric & Manufacturing Company, speaking before the

American Ceramic Society in Pittsburgh.

"The full realization of this huge post-war housing program will require large volumes of permanent public works such as streets, water systems and playgrounds as well as commercial and public buildings," he said.

"Representatives of the industry should take an active part in the post-war planning of these community activities to assure such projects getting through the blueprint, specification and finance stages."

The immediate post-war housing pro-



now wear "Plastic Overcoats"

Bausch & Lomb 7X, 50mm Binocular



Denied the continued use of vulcanized rubber for binocular covering, the U. S. Navy sought a plastic material that would furnish the metal-clinging, water-tight, sure-grip properties required in sea-duty binocular body covers.

Because the cooperative effort of engineers representing Bausch & Lomb, the plastics manufacturer and the Navy solved the difficult details posed by this problem, the new all-weather Vinylite coat on today's binoculars is as good as and, in some important respects, better than the former rubber coats. This plastic does

not deteriorate in sunlight and clings more firmly to the metal body.

This superior covering material will be on the better Bausch & Lomb Binocular that will be available after Victory, one more reason why Bausch & Lomb Binoculars will still be known as "the world's best—by any test."

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gram, he said, should develop on a schedule calling for 350,000 to 400,000 units the first year and reaching 1,000,000 units annually by the end of the fifth year.

He asserted that these post-war housing figures "are reasonable and are within the ability of the housing industry to accomplish and the public to absorb."

Science News Letter, April 22, 1944

This Week's Books

- THE BACONIAN LECTURES 1943—Univ. of Iowa, 120 p., paper, 75c. Series on Aims and Progress of Research No. 74, Study Series No. 405.
- BEHIND THE OPEN DOOR: The Story of American Far Eastern Relations—Foster Rhea Dulles—*Institute of Pacific Relations and Webster*, 92 p., illus., paper, 40c.
- THE BRUSH FOUNDATION STUDY OF CHILD GROWTH AND DEVELOPMENT: I. Psychometric Tests—Elizabeth Ebert and Katherine Simmons—*Society for Research in Child Development*, 113 p., paper, \$1.50.
- CALCULUS REFRESHER FOR TECHNICAL MEN—A. Albert Klaf—*Whittlesey House*, 431 p., \$3.
- THE CONTRIBUTION OF HOLLAND TO THE SCIENCES—A. J. Barnouw, B. Landheer, eds.—*Querido*, 373 p., illus., \$3.50.
- CERAMIC STRATIGRAPHY AT CERRO DE LAS MESAS VERACRUZ, MEXICO (Smithsonian Institution Bureau of American Ethnology Bulletin 141)—Philip Drucker—*Gov't. Printing Off.*, 155 p., illus., paper, 50c.
- DR. GEORGE WASHINGTON CARVER, Scientist—Shirley Graham and George D. Lipscomb—*Messner*, 248 p., illus., \$2.50.
- ELEMENTARY TOPOGRAPHY AND MAP READING—Samuel L. Greitzer—*McGraw-Hill*, 157 p., illus., \$1.60.
- GEOLOGY FOR EVERYMAN—Sir Albert Charles Seward—*Cambridge Univ. Press*, 312 p., illus., \$3.25. This book is not only good as a first approach to geology but is useful for reference purposes despite its British flavor.
- A GUIDE TO NAVAL AVIATION—Wallace W. Elton, Alfred H. Driscoll, Robert N. Burchmore, Gray B. Larkum—*McGraw-Hill*, 296 p., illus., \$2.50.
- IT'S YOUR FUTURE: Make the Most of It!—Martin Panzer—*Whittlesey House*, 270 p., \$2.50. A breezy "success" book.
- LET'S ALL GROW VEGETABLES—Grace Keen and Arthur Hutchins—*Univ. of Minn. Press*, 92 p., illus., paper, \$1.
- THE MUTANTS OF DROSOPHILA MELANOGASTER—Calvin B. Bridges and Katherine S. Brehme—*Carnegie Institution*, 257 p., illus., paper: \$2.50, cloth: \$3, Publication No. 552.
- PHYSICS WORKBOOK—Mahon H. Buell and Frederick W. Schuler—*Lippincott*, 378 p., illus., paper, \$1.12, rev. ed.
- STICK AND RUDDER: An Explanation of the Art of Flying—Wolfgang Langewiesche—*Whittlesey House*, 389 p., illus., \$3.75.
- WINGS AFTER WAR: The Prospects of Post-War Aviation—S. Paul Johnston—*Duell, Sloan & Pearce*, 129 p., illus., \$2.
- WAR-TIME CHINA—Maxwell S. Stewart—*Am. Council Inst. of Pacific Relations*, 63 p., illus., paper, 25c., I.P.R. Pamphlets No. 10.



Wandering Weeds

➤ AMERICAN fighting men who have time to look about themselves in quieter sectors of the Pacific islands may be surprised to find, among the lush, exotic vegetation, many leaves and flowers and fruits that remind them of home. They will most often be weeds, sometimes of the very same species they have had to pull out of their gardens or fight in the fields back on the farm.

In the War Department's official manual of emergency food plants and poisonous plants of the Pacific islands (TM 10-420), the following are listed among species that may be pressed into service to enable grounded flyers and "bushed" soldiers to live off the country, if need be: ground cherry, black nightshade, water chestnut, dayflower, seaside morning-glory and purslane—the latter more likely to be called "pusley" by fighters who were farmers a couple of years ago.

Because they knew them at home, and now find them in these far islands, our men overseas may take them all to be American in origin. This is not necessarily the case. Some of them were immigrants into America, too, and their presence in the islands may be the result of further travel from our continent or of independent travel from other lands where they are equally at home. This will certainly be the case, for example, with the water hyacinth, familiar to everyone from the Gulf Coast and peninsular Florida, which was a far-traveled weed before ever it reached our shores.

How did they get there? Well, weeds are great travelers, and seem to have pretty much the same abilities as stowaways on the white man's ships as

his universal though unwanted animal fellow-voyagers, the rat, the cockroach and the housefly. It's pretty hard to tell just how.

Seeds of some, probably, were brought in earth and gravel used as ballast in ships. Such ballast is usually shoveled up from dumps and waste places—natural habitats for weeds. Some of the species definitely belong to the seashore, which gives further support to this theory.

Somewhat more direct, though still inadvertent, may have been the human role in furnishing transportation to these vegetable wanderers. The South Sea Islands have been favorite scenes of American missionary endeavor from the very early days of the republic. American traders, too, have been frequent visitors at many of the islands, and on some of them Americans have settled as planters. Garden seeds imported from home may have had weed seeds mixed with them; hay and straw used as packing in boxes and barrels of household gear or trade goods notoriously carry weed seeds.

A few species are plants once cultivated but now "gone native" and relapsed to a more primitive, weedy habit of growth. Among these, beyond all possibility of question, are several definitely South American plants, such as tomato, lima bean, sweet potato, peanut and cassava, or manioc.

Science News Letter, April 22, 1944

INVENTION

Novel Air Fence Uses Balloons Within Balloons

➤ A NOVEL air fence, subject of patent 2,345,550 granted to Alex Berman of Louisville, Ky., is intended to entangle enemy dive bombers and other aircraft attacking a city, building, camp or ship. The fence is made up of encircling balloons from which dangle wires and chains. Each balloon is held at a fixed height by a cable attached to an anchored winch on the ground by which it can be pulled down to the earth.

Each of these balloons, in reality, is an envelope containing a number of small attached balloons so that if some are punctured by bullets the others will hold the main balloon and its dangling chains aloft. The hanging chains are suspended from the two ends of a strap extending over the balloon so that the whole is effectively stabilized.

Science News Letter, April 22, 1944

Books from CAMBRIDGE UNIVERSITY PRESS

ON GROWTH AND FORM

by Sir D'Arcy W. Thompson

This new edition of a great and remarkable book is a liberal education in the scientific attitude. "No one with the slightest sense of the humanistic aspects of science can fail to delight in the whole book."—Amer. Journal of Science. "A fascinating guide for traveling an unusual route through the worlds of aesthetics, mathematics, mechanical engineering, colloidal chemistry, biology and history of science."—Anatomical Record. **\$12.50**

THE PERMEABILITY OF NATURAL MEMBRANES

by Hugh Davson and J. F. Danielli

Just published. "Cell physiologists will be grateful indeed for this summing up of a subject destined for rapid development under the stimulus of modern methods of exploring molecular dimensions and molecular arrangement. The facts are systematically and logically presented in this timely volume."—Prof. E. Newton Harvey's foreword. **\$4.75**

MANOMETRIC METHODS

as applied to the measurement of cell respiration and other processes

by Malcolm Dixon

A new edition, revised and enlarged. These methods are now extensively used in nearly all biological, biochemical, physiological and bacteriological laboratories as well as in many laboratories of applied science. This small handbook gives the complete theory and full practical details of the method, and should be readily intelligible to workers without special physico-chemical knowledge. **\$1.75**

PHYSICS AND PHILOSOPHY

by Sir James Jeans

Sir James Jeans asks questions that touch ourselves and our lives closely, such as: "Is the world a thought or a machine?", "Are human beings endowed with free will?" He discusses philosophical thought from the Greeks down to Eddington and shows how modern theories of physics affect our ways of thinking. "Easy and charming to read as *Alice in Wonderland*; champagne for thinkers, fascinating as a novel."—N. Y. Journal-American. **\$2.75**

Order from your
bookstore or from**THE MACMILLAN COMPANY**
60 Fifth Avenue, New York 11, N. Y.

•New Machines and Gadgets•

✿ **KNITTING** in the dark may soon be possible with a newly-patented knitting needle which features an illuminated point. The needle is made of a plastic which transmits light lengthwise without giving it out except at the end. An encased small electric bulb at the blunt end furnishes the light.

Science News Letter, April 22, 1944

✿ **CLIPS** to hold pencils and pens in the pocket will hinge in an arched recess in the cap portion so that they may be turned outward to permit free use of the eraser. This newly patented clip is especially suitable for the use of soldiers because it is so placed on the cap that the pencil hangs hidden in the pocket.

Science News Letter, April 22, 1944

✿ **CONTROLLED ILLUMINATION** is provided in a new high intensity illuminator, used to view X-ray films of castings to detect flaws, by a variable voltage foot-switch control that allows stepless adjustments from 0 to 110 volts. The air-cooled apparatus permits the viewing of 14- by 17-inch films at a glance in one operation.

Science News Letter, April 22, 1944

✿ **AUTOMOBILE BUMPERS** made of wood may replace steel bumpers if the metal is needed for war purposes. Tests indicate the one shown in the



picture, made of five-ply laminated wood, is as serviceable as ordinary metal bumpers.

Science News Letter, April 22, 1944

✿ **PRESSURE COOKERS** may have their covers safely closed by means of a new, simple locking mechanism, just patented. The cover for a steam-pressure saucepan or other cooker has a flanged rim to fit flanges on the pan. A rotatable ring on the cover locks it to the pan by a single movement of a handle on the cover.

Science News Letter, April 22, 1944

✿ A 12-INCH high-intensity searchlight, providing more than 7,500,000 candlepower, has a 900-watt mercury lamp cooled by compressed air. Cooling is necessary because the mercury arc creates intense heat. The searchlight is four times as powerful as the conventional incandescent searchlight of the same size.

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✿ **HEAD-BAND** sets of magnifying lenses, used by medical men, laboratory technicians and factory inspectors, are now made with a vision conversion adjuster, and also are so hinged that they can be swung up against the forehead when not in use. They are now made of plastic instead of metal.

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If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 204.

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